

# Monitoring Riparian Birds along the Lower Colorado River 2014

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# Background

Implement long-term system-wide monitoring of riparian birds with focus placed on six LCRMSCP covered species

## Our Goals

- Determine presence and estimate breeding population sizes
- Derive recommendations for habitat creation and continued bird monitoring

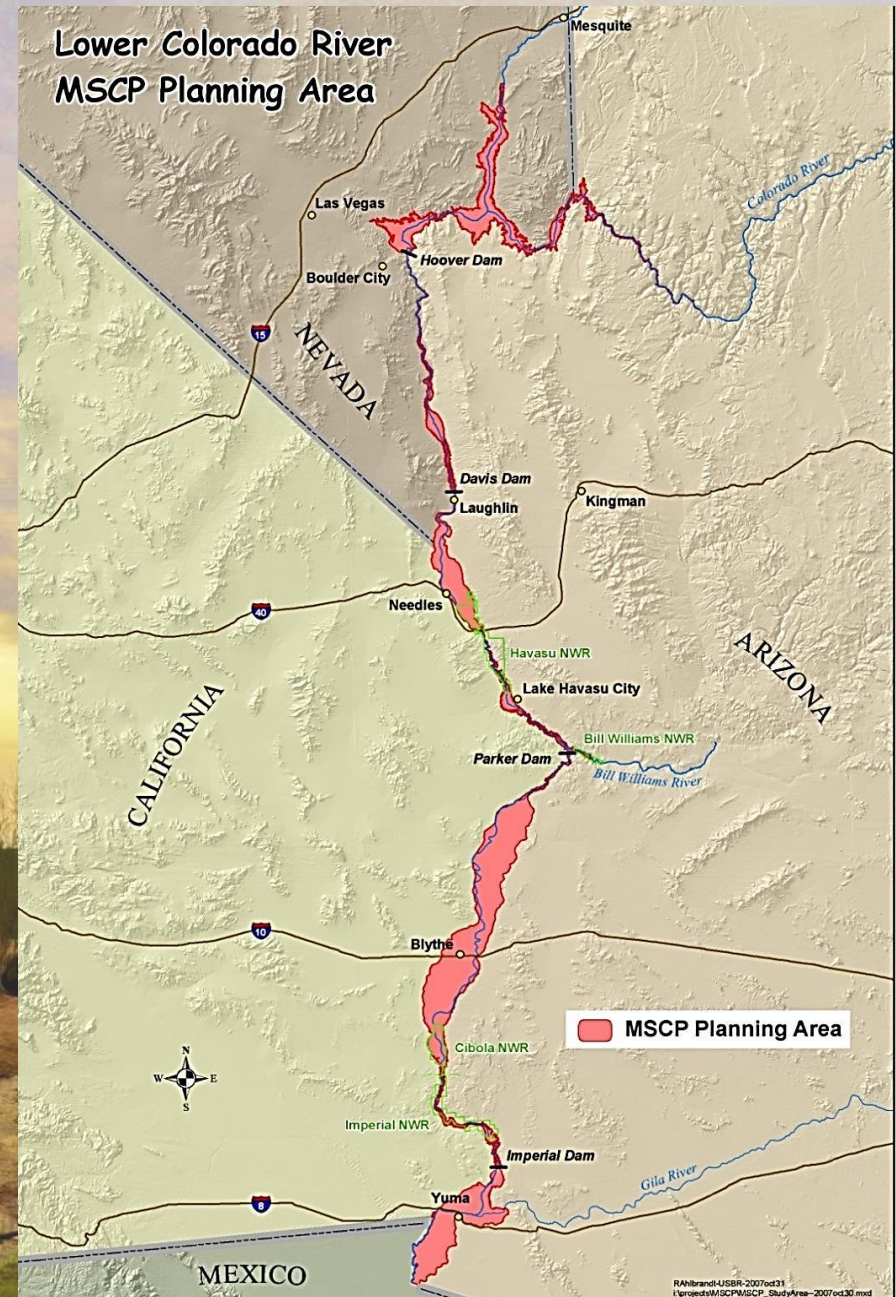
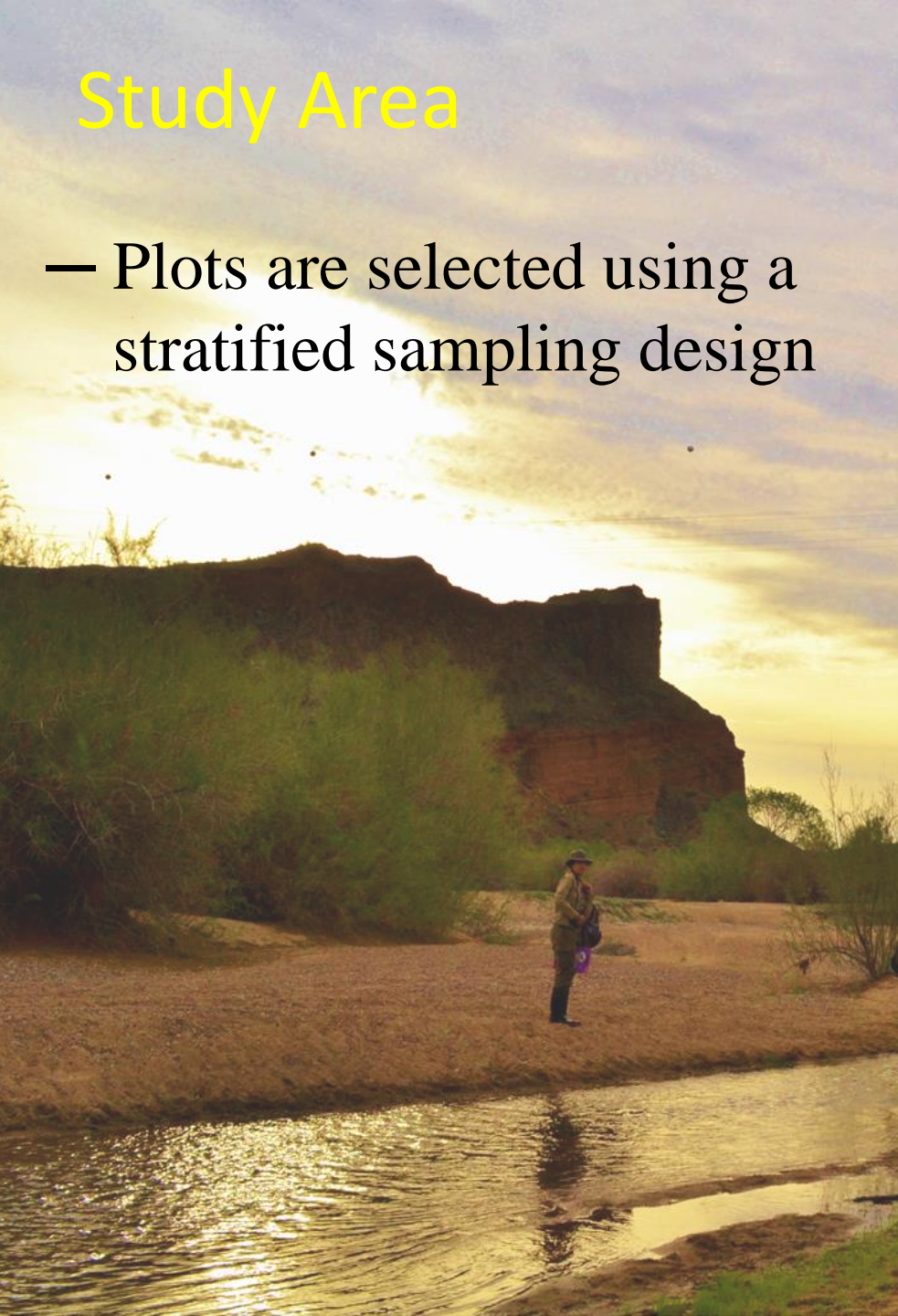


- Arizona Bell's Vireo
- Gila Woodpecker
- Gilded Flicker
- Sonoran Yellow Warbler
- Summer Tanager
- Vermilion Flycatcher



# Study Area

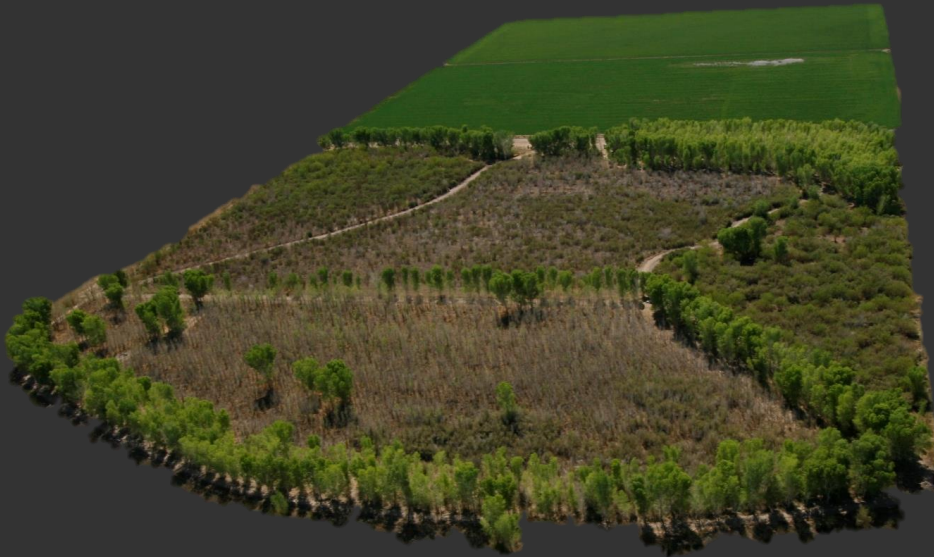
- Plots are selected using a stratified sampling design





# 2014 Survey Plot Breakdown (n=186)

- 80 plots from 91 Habitat Creation (HC) sites. Including a new site for GBBO Yuma East Wetlands
- 80 plots System-wide (SW) throughout MSCP planning area



- 30 Tamarisk Beetle Plots within Bill Will and Havasu NWR



Note: Four of the randomly selected SW plots overlapped the Tamarisk Beetle plots

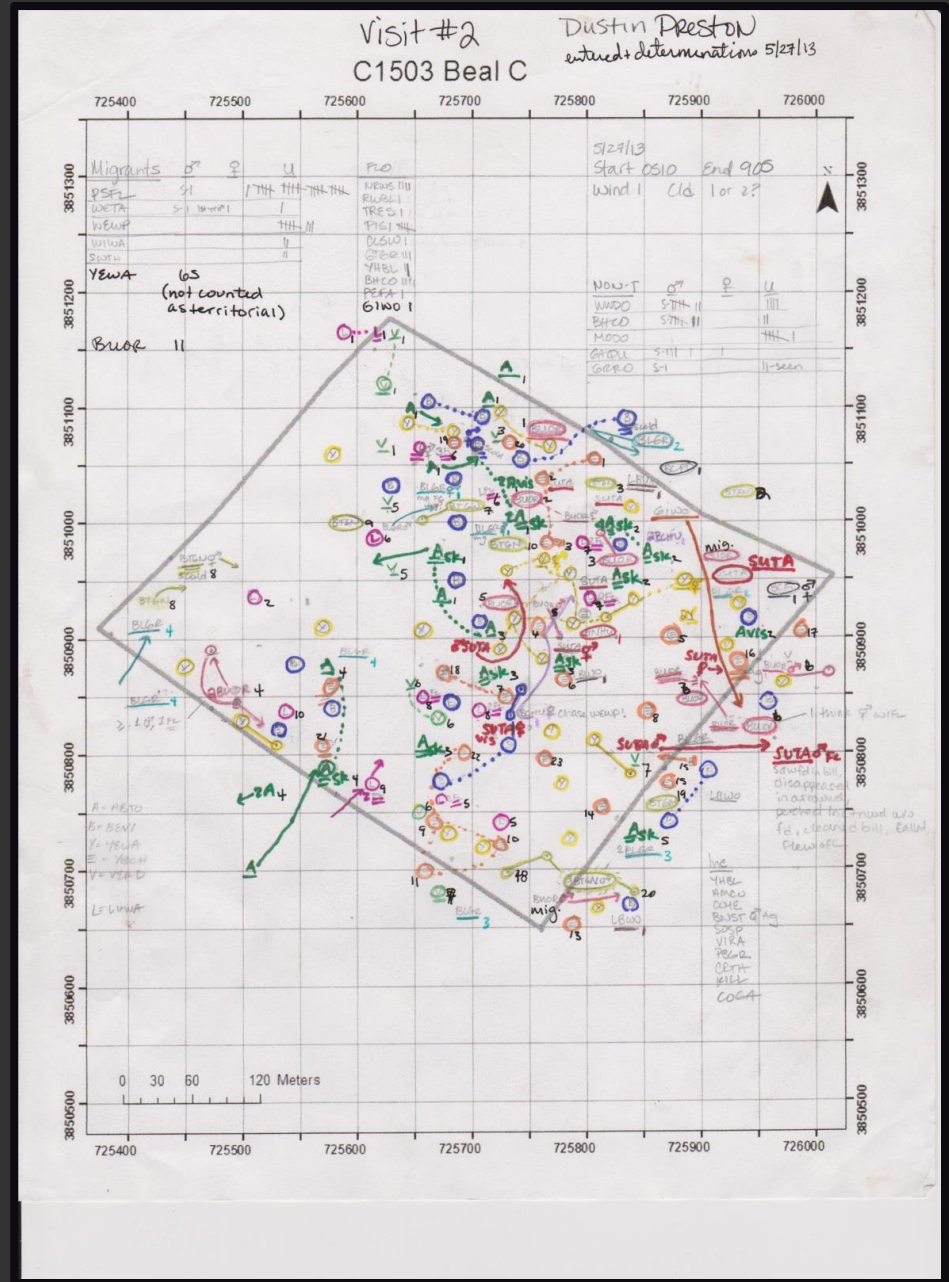
# Habitat Creation Sites

1. Beal (n=4)
2. Ahakhav Tribal Preserve (CRIT n=5)
3. Palo Verde Restoration Site (PVER n=35)
4. Cibola Valley Conservation Area (CVCA n=23)
5. Cibola Unit 1 (n=13)
6. Yuma East Wetlands (n=10)
7. Hunter's Hole (n=1)



# Survey Methods

- Plots are typically 9 ha
- Surveys are conducted using area search method
- Begin at sunrise and last several hours
- Surveyed systematically passing within 50m of all points on plot
- Surveyor identifies and tallies all birds
- Bird sightings, locations, and breeding evidence recorded



## Sample of an intensive plot with territory mapping



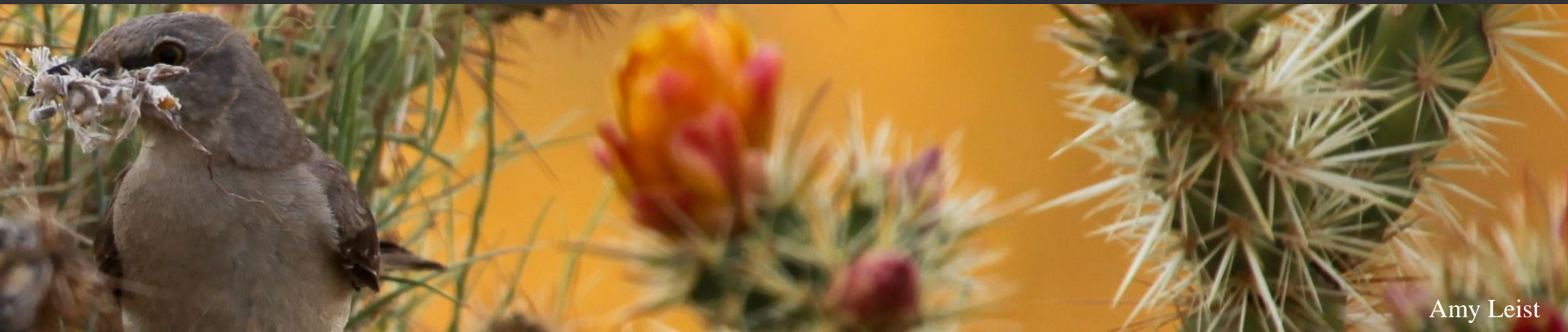
# Double Sampling

- Two survey approaches (Rapid and Intensive)
- Rapid surveys (two times/season) may result in biased estimates
- Intensive surveys (eight times/season) used to obtain an estimate of biases through detection ratios
- Detection ratios are used to account for biases associated with rapid surveyor effort in our population size estimates
- Two different surveyors for each approach



# Overall Results 2014

- 468 surveys (including intensive and rapid surveys)
- 201 species recorded
- 97 species were breeders (~ 5401 territories)
- 188 species were recorded on all SW surveys
- 149 species were recorded on all HC surveys
- 136 species were present on both SW & HC plots





# Noteworthy Breeding Species



Tropical Kingbird

Lauren Harter

## Nutting's Flycatcher



Lauren Harter

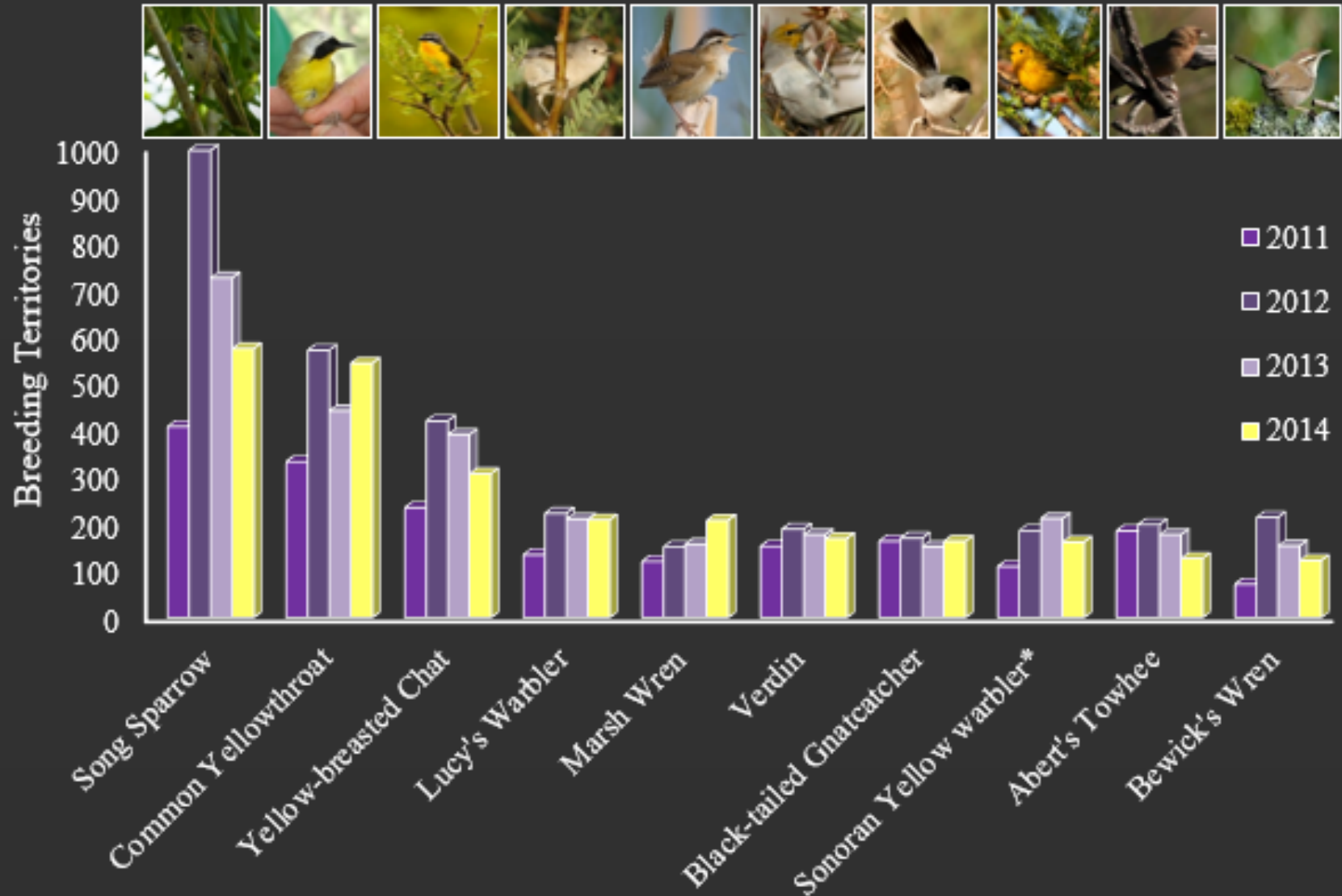
# System-wide Rapid Survey Results 2014

- 184 species recorded
- Territorial breeders:  $n=62$  (~3228 total territories)
- Non-territorial breeders:  $n=15$
- Non-breeders or migrants:  $n=107$

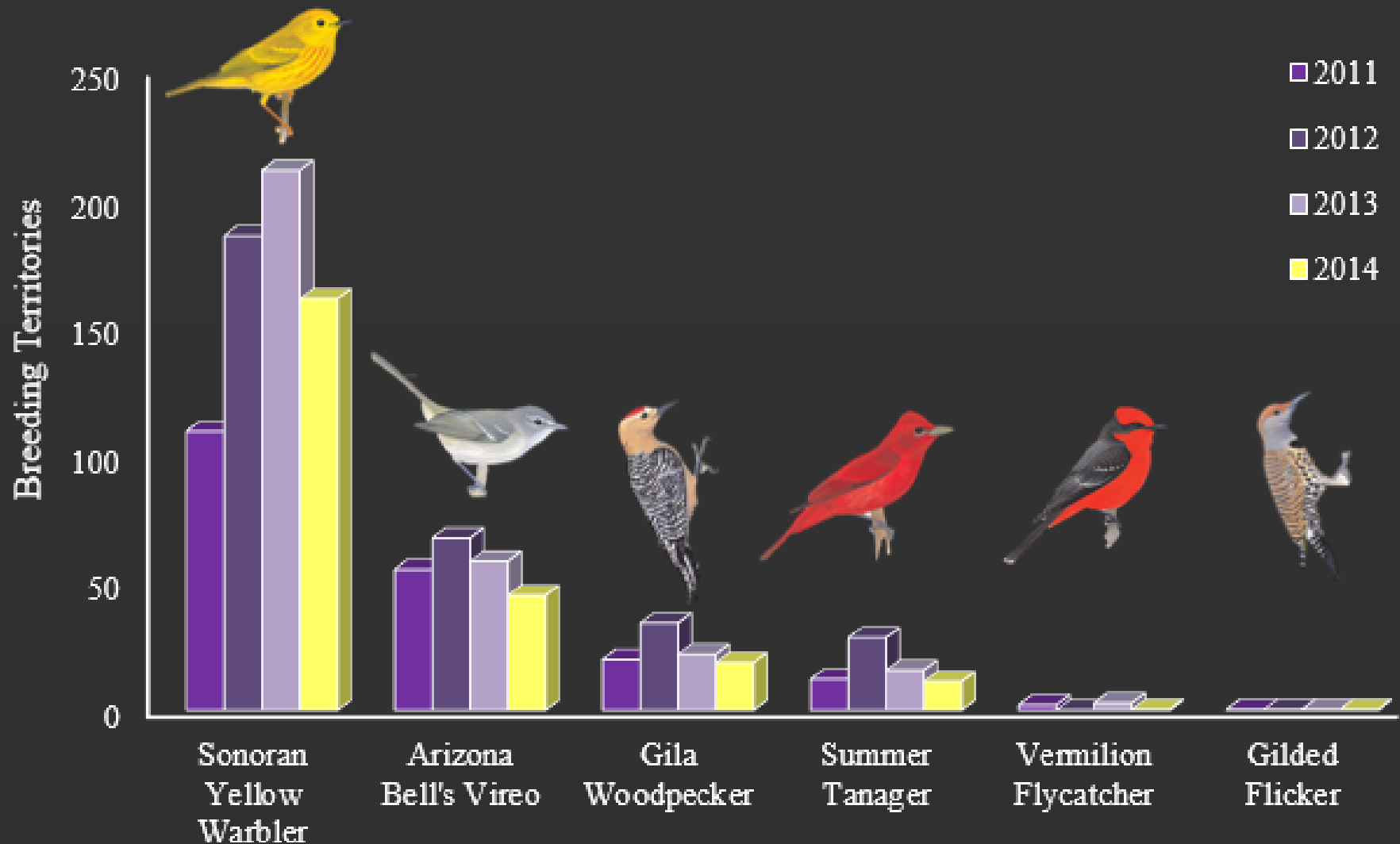




# Most Abundant Breeders - System-wide Rapid Surveys (2011-2014)



# Covered Species Territories - System-wide Rapid Surveys (2011-2014)



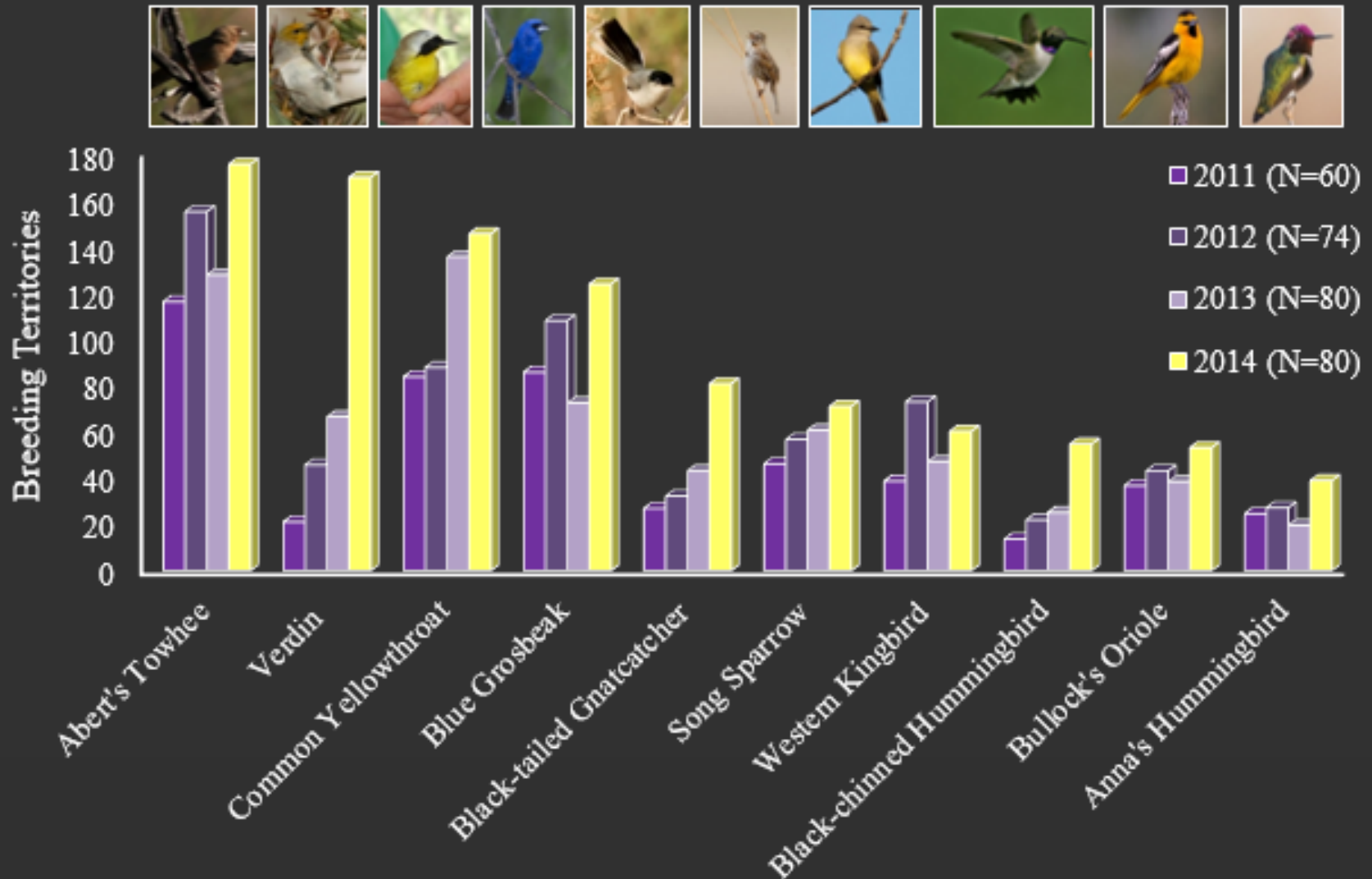


# Habitat Creation Rapid Survey Results (2014)

- 157 species recorded
- Territorial breeders:  $n=45$  (~1239 total territories)
- Non-territorial breeders:  $n=13$
- Non-breeders or migrants:  $n=99$

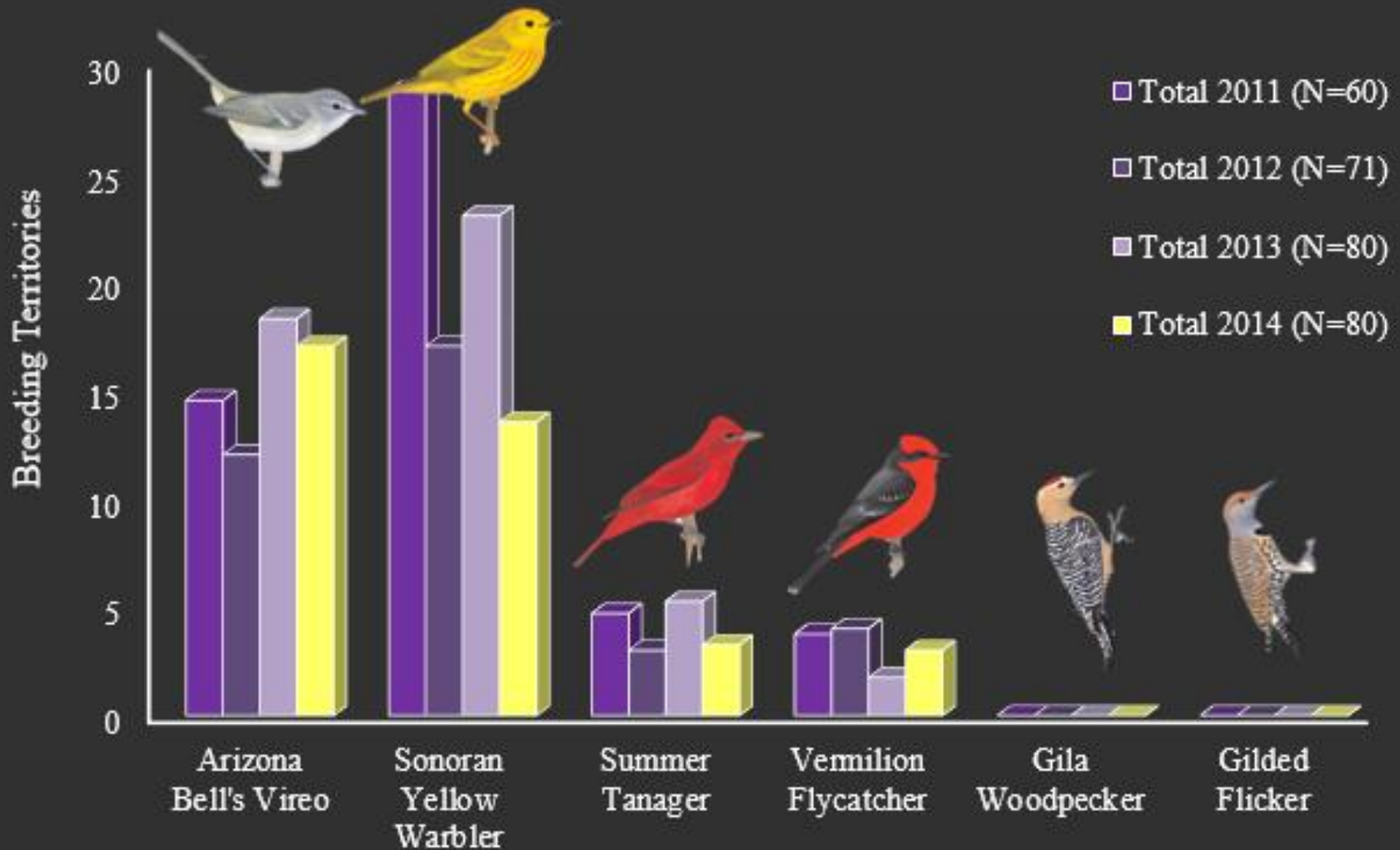


# Most Abundant Breeders - Habitat Creation Rapid Surveys (2011-2014)

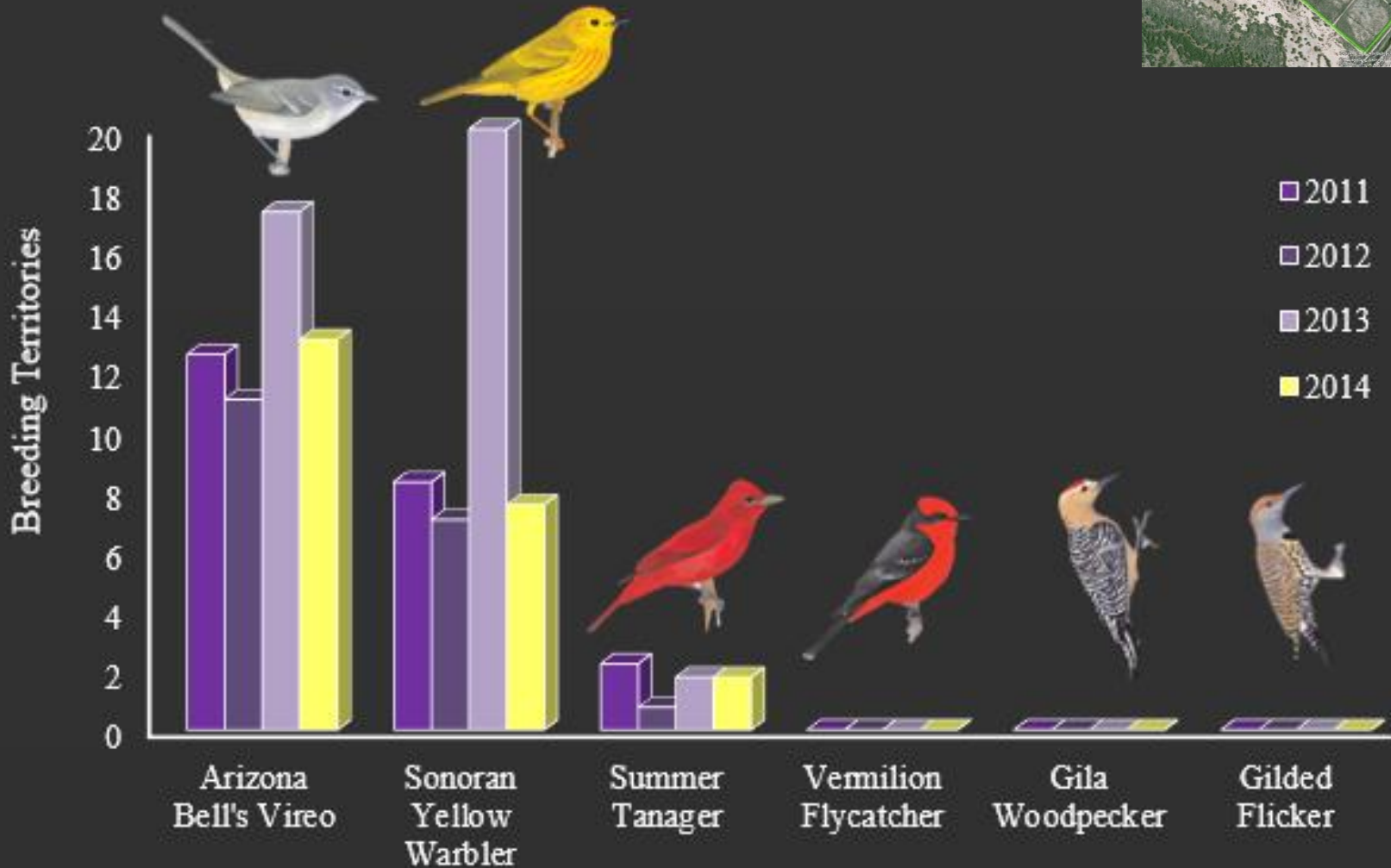




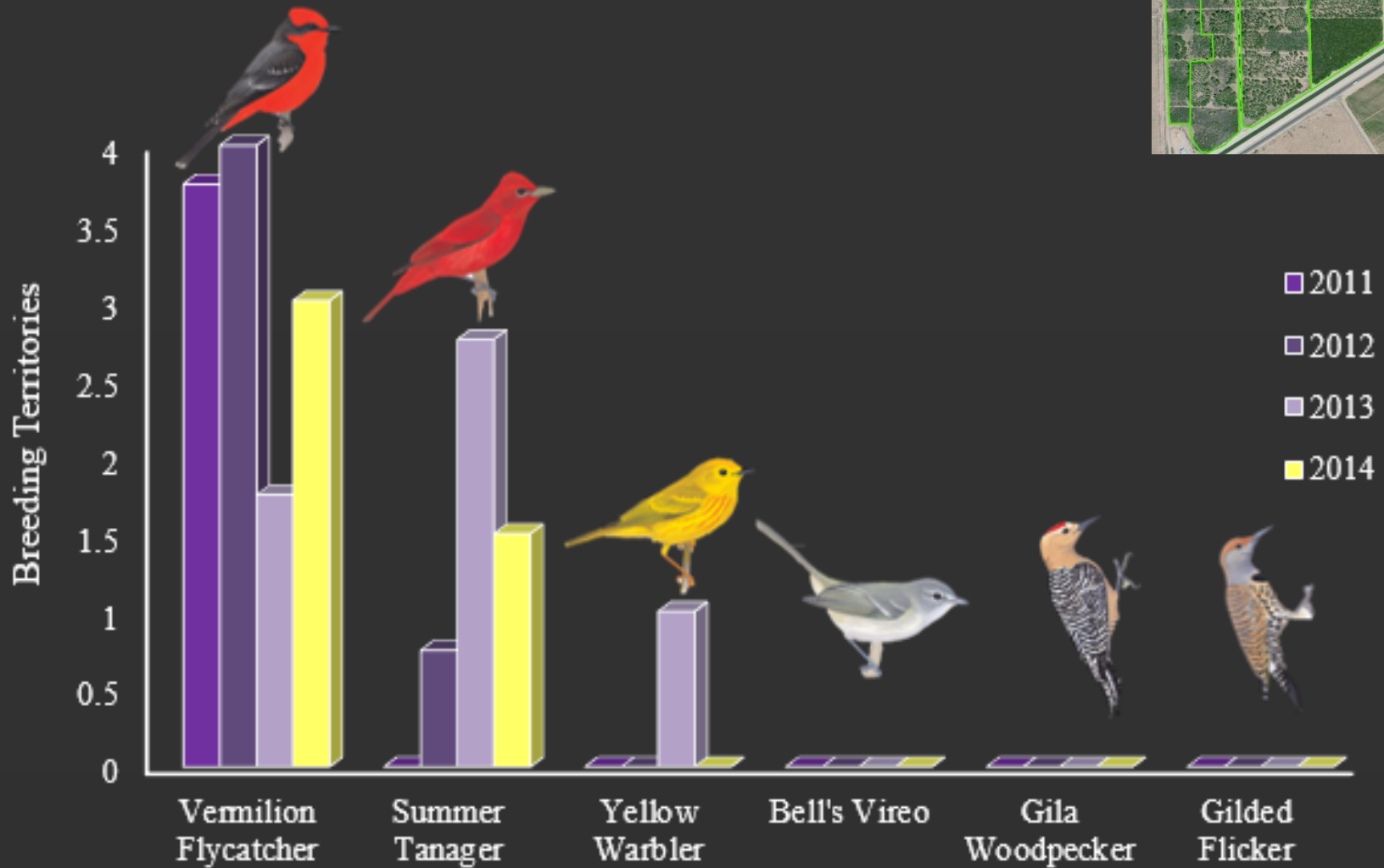
# Covered Species Territories - Habitat Creation Sites (2011-2014)



# Covered Species Territories BEAL Rapid Surveys (2011-2014)

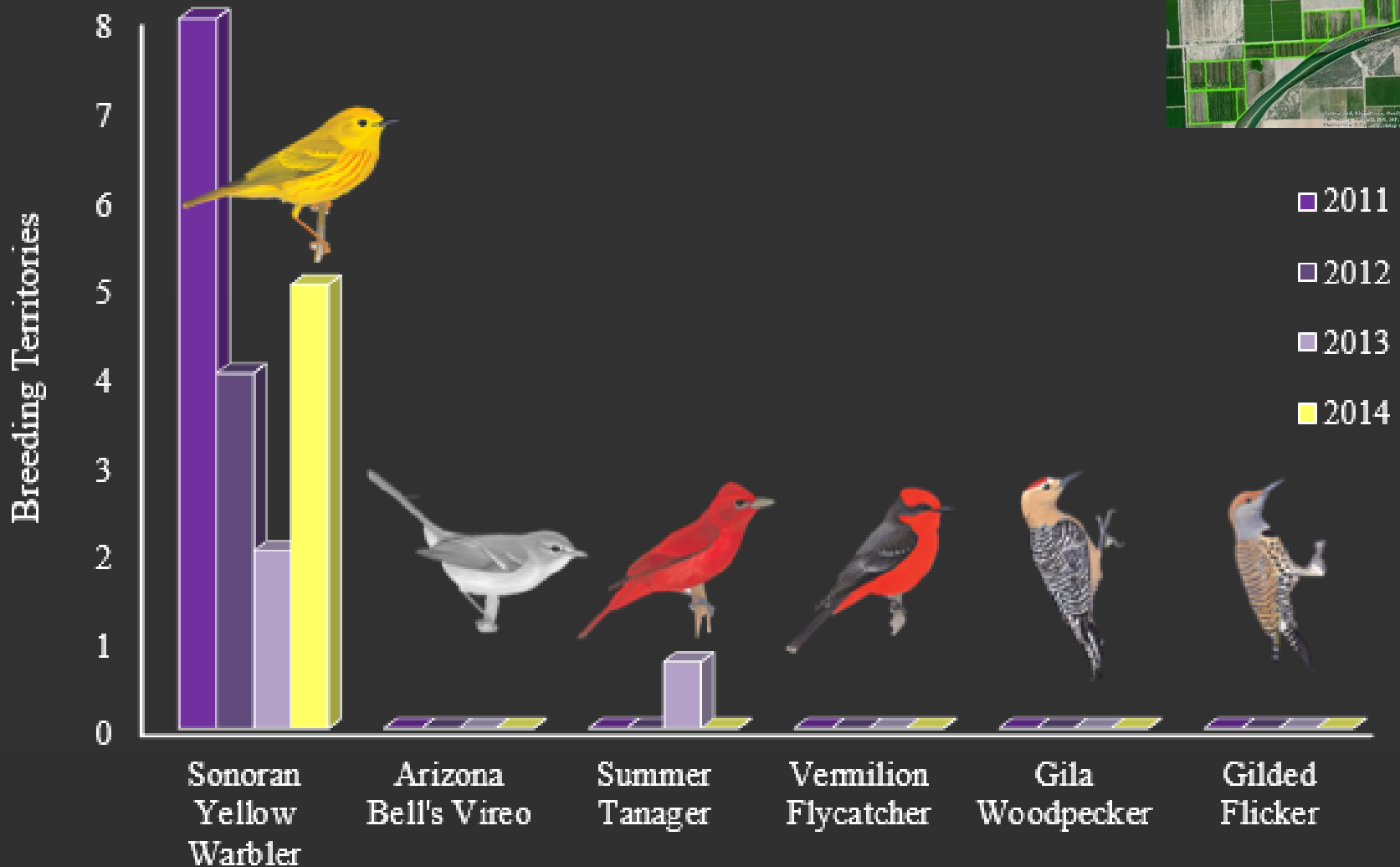


# Covered Species Territories CRIT Rapid Surveys (2011-2014)

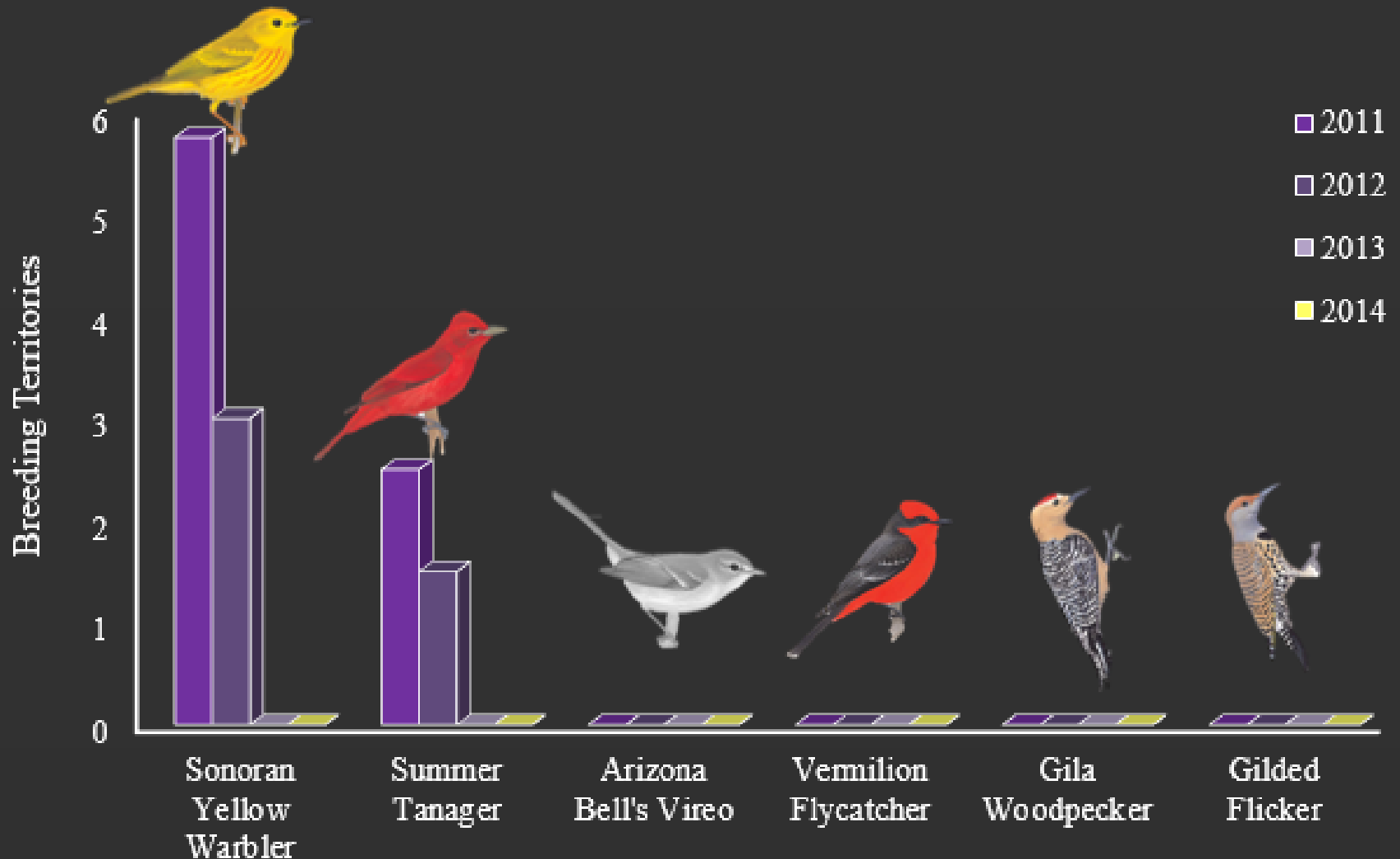




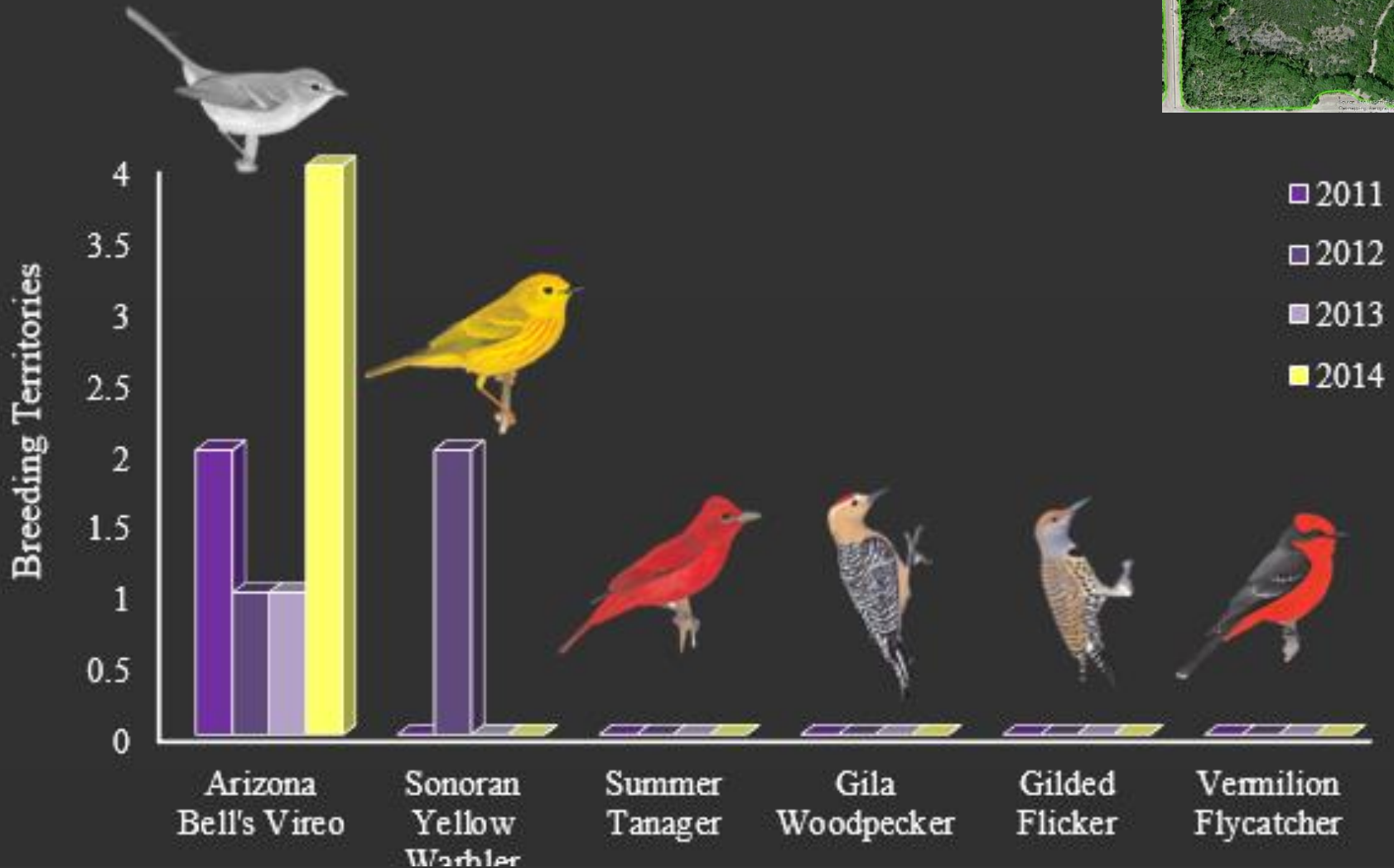
# Covered Species Territories PVER Rapid Surveys (2011-2014)



# Covered Species Territories CVCA Rapid Surveys (2011-2014)



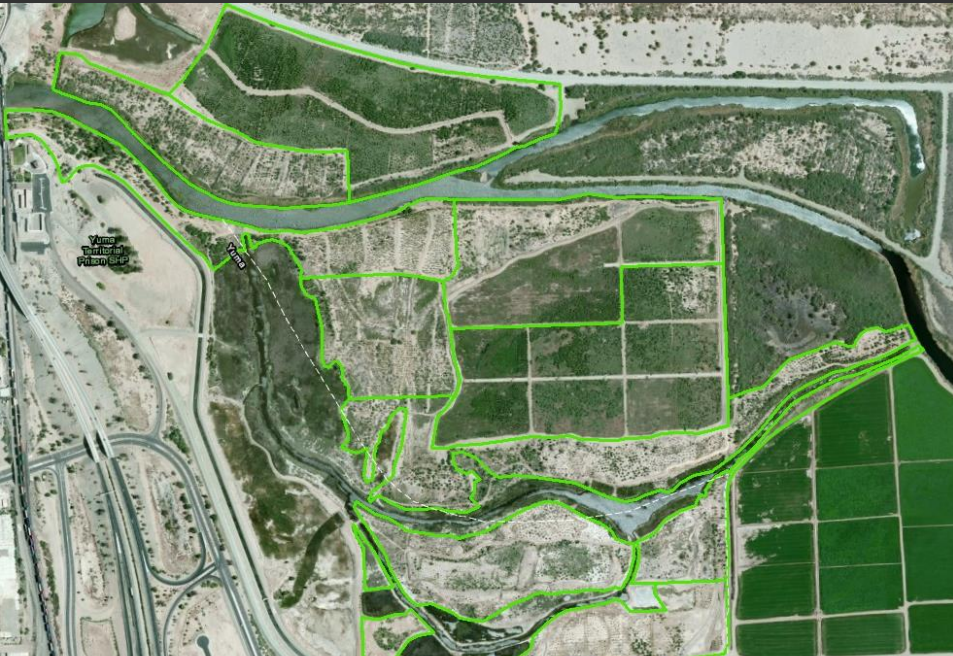
# Covered Species Territories Nature Trail Rapid Surveys (2011-2014)





# Habitat Creation Sites Not Yet Mentioned:

- Crane Roost had a Yellow Warbler 2012
- Cibola Farm Unit had a Yellow Warbler Recorded in 2014
- Yuma East Wetlands to date has not had a covered species recorded as a breeder.



# Habitat Assessment

- Detailed habitat data was collected for four of the covered species (Gilded Flicker and Vermilion Flycatcher were too rare)
- Data was collected within use locations, and in paired nonuse locations where the species was not recorded (n=10 use; n=10 nonuse plots).



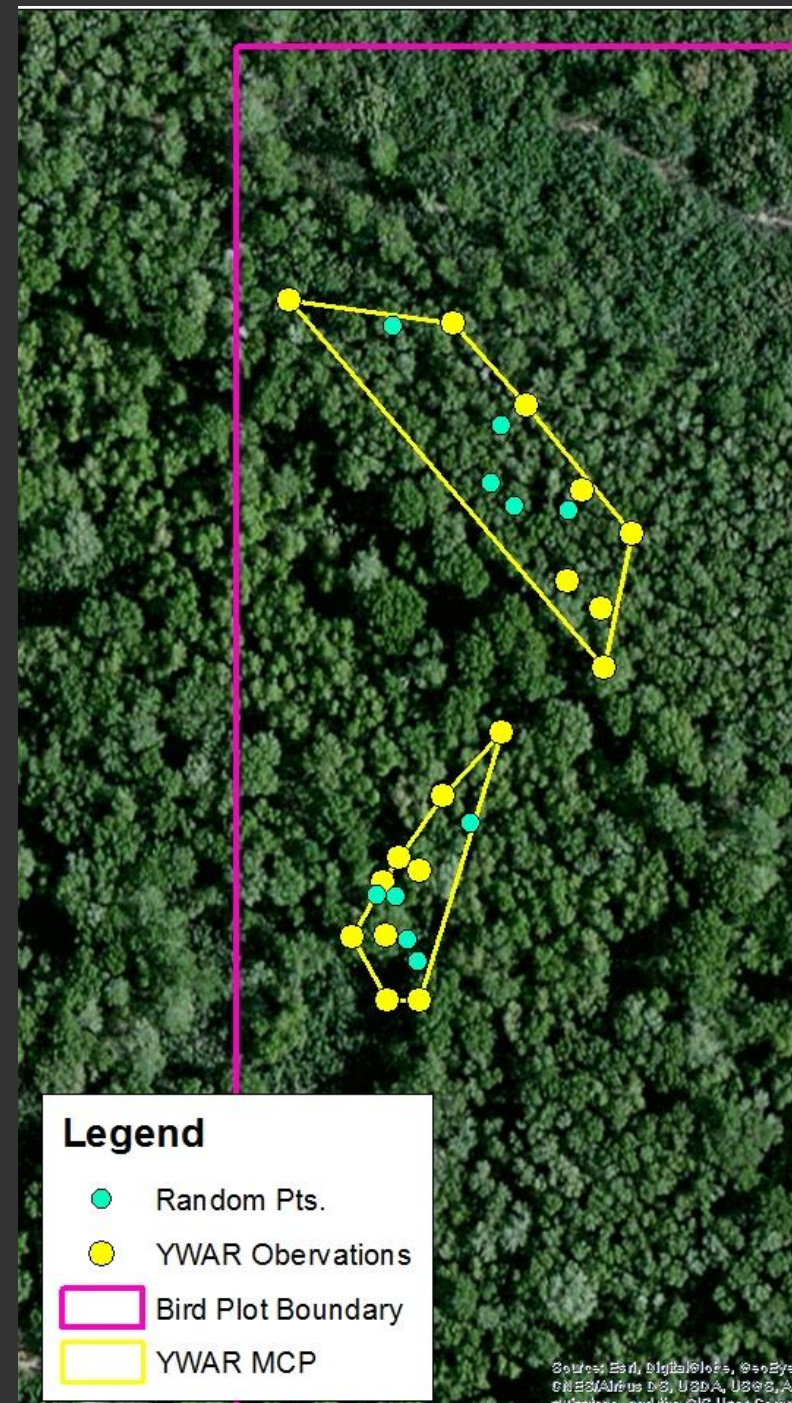
- We measured vegetation structure and plant species composition.
- We collected temperature and relative humidity using HOBO data loggers (n=6 use; n= 6 nonuse locations)





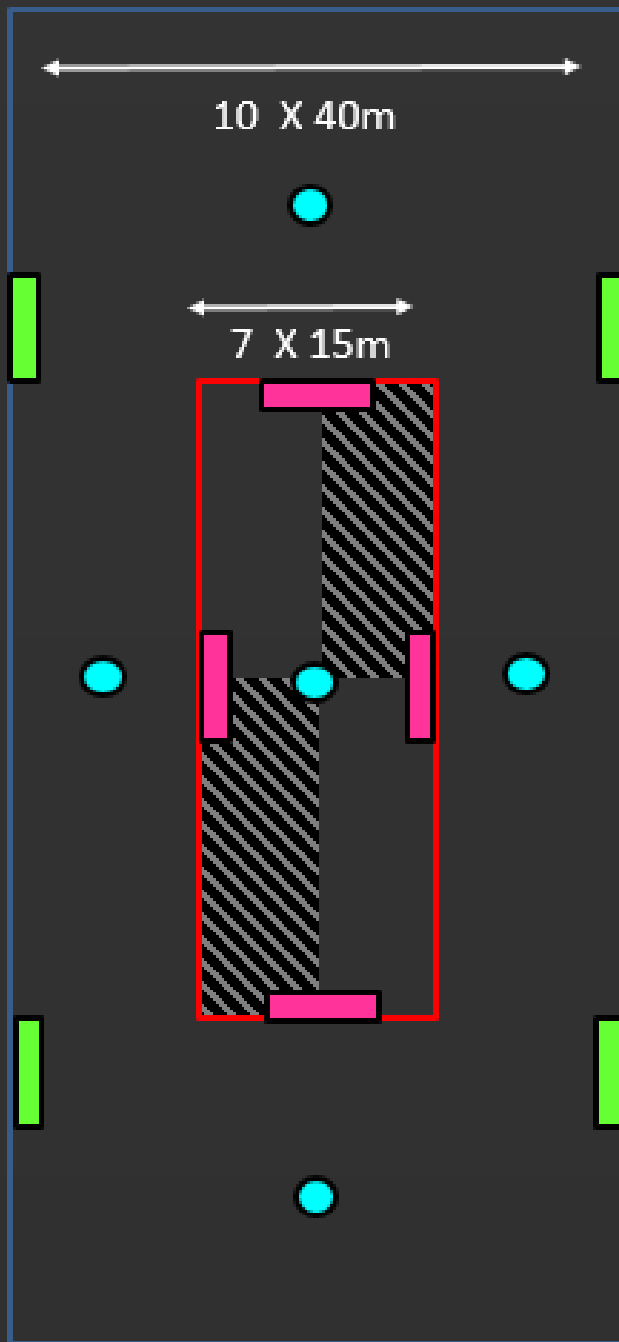
# Vegetation Use Location Selection

- For each randomly selected territory, one use vegetation location was selected per two acres with a maximum # of five use locations per bird territory.
- Minimum Convex Polygons are created from observation records
- Ten paired non-use locations were then randomly generated for each species.





## Parameters collected:



Large trees, stem count, snags, incidental species, and felled trees

Smaller Trees and stems

Baccharis height and stem count, and shrub count

Medium sized Coyote willow and medium sized dead trees

Herbaceous foliar cover & ground cover

Arrowweed, small Coyote willow and small dead trees

Vegetation volume, canopy closure

# Vegetation Data Collection

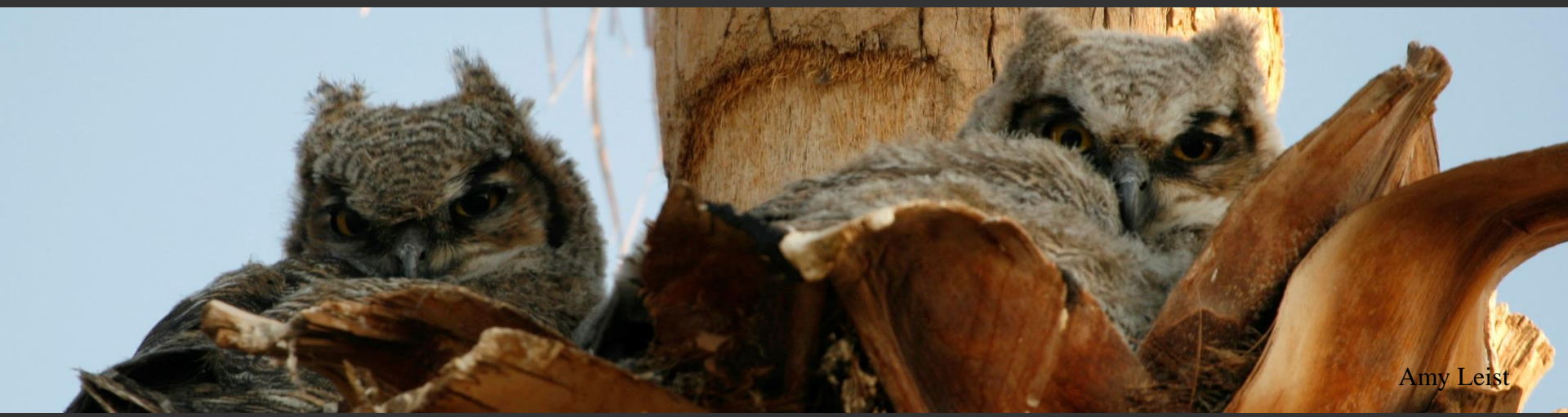


- In 2014 we surveyed 83 vegetation plots (60 use and 23 non-use locations)
- To date vegetation data has been collected at 389 vegetation plots (274 use and 115 nonuse)
- Since 2011 Hobos have been established at 182 locations



# Conclusions:

- We observe yearly fluctuations among all breeding birds, system-wide and on habitat creation sites. This is typical for migratory birds.
- We see a recent increase in the most abundant riparian birds at habitat creation sites, but not system-wide.
- Occupancy by covered species of habitat creation sites remains low compared with the system-wide average.







- The causes for differences between habitat creation sites and the system-wide average are unknown, but could be explored with habitat modeling using available vegetation data.



# Acknowledgements

- US Bureau of Reclamation Wildlife Group
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- National Wildlife Refuge Staff
- GBBO Staff
- Awesome field crews over the years

